

US EPA ARCHIVE DOCUMENT



AEP Conesville Power Plant
Conesville, Coshocton County, Ohio
US EPA Inspection – October 2009
Ash Pond Complex
Action Plan based on Final Recommendations - February 2010

4.2 Maintaining and Controlling Vegetation Growth

The grass cover on the Bottom Ash Pond embankment appeared to be reasonably maintained, with only isolated areas of mild cover loss. This practice should continue.

Standing water and wetlands growth was observed between the Northern Haul Road Dike and County Road 273. This growth appears to be the result of water backing up into the drainage ditch at the toe of the dike from a poorly drained, swampy area on the north side of County Road 273. As a result, flow through the culvert below County Road 273 is restricted and runoff cannot be effectively conveyed from the ditch. CHA recommends drainage in this area be corrected so water is not standing/saturating the toe of the dike and observations of seepage, if any, can be seen. Additionally, weed growth has obstructed flow through the measurement weir and corresponding observations. The growth obstructing the weir should be cleared.

Brush growth was observed on the downstream slope of the Coal Haul Road Dike adjacent to the Fly Ash Pond. The woody vegetation should be removed under the supervision of a Professional Engineer.

CHA recommends that vegetation be cut prior to each quarterly inspection performed by AEP representatives so that adequate visual inspections can be made.

Response:

AEP fully understands that maintenance of the facilities is part of the actions required to ensure the integrity of the dam and dikes at the facilities. Therefore, AEP will continue a proactive maintenance and monitoring program as established.

As part of our annual maintenance program, mowing is performed at least twice a year. Mowing will be coordinated such that the visual inspections can be performed without hindrance.

Since the inspection date, Conesville Plant personnel have corrected the drainage item at the culvert below County Road 273 and cleared the vegetation around the measurement weir.

Additional tree and woody vegetation clearing on the downstream slope of the Coal Haul Road Dike will be completed by November 30, 2010.

4.3 General Crest Areas and Slopes

The crest of the Northern Haul Road and Coal Haul Road dikes had intermittent erosion rills and subsequent loss of grass cover resulting from water flow from storm events and dust control water spray. These erosion rills should be filled in with compacted material and otherwise stabilized. CHA recommends on-going maintenance and/or a change to the surface treatments to reduce erosion from run-off. The facility may consider adding curbing with roadside gutters to collect runoff and direct it toward designated concrete lined ditches or rock protected outfalls.

The slump and scarp area located on the downstream slope of the Coal Haul Road dike should be stripped of vegetation, excavated, and subsequently repaired under the direction and observation of a Professional Engineer. It is currently not believed to be an immediate threat to the dike, and would affect the haul road well before endangering the Clearwater Pond area. If left unaddressed however, continued slope softening, deformation, and erosion will eventually cause a problem.

Rodent borrows were observed on the upstream side of the Northern Haul Road and Coal Haul Road dikes. Rodent control measures should be implemented and the affected areas should be backfilled with compacted fill.

A haul road has been cut across the southwestern dike. A topographic survey should be made of this area to compare the available free board to the low point elevation and regrading should be undertaken if needed to meet the freeboard requirements.

Response:

Since the inspection date, Conesville Plant personnel have repaired the erosion rills on the north and coal haul road dikes. AEP will continue to monitor these areas as part of its Dam Inspection and Maintenance Program (DIMP). Quarterly inspections of the facility are performed by Plant personnel and AEP Engineering conducts an annual inspection. If erosion areas are noted during the inspections, repairs will be performed and vegetated.

AEP Engineering will investigate the old slump area on the downstream slope of the Coal Haul Road dike and develop a repair plan by December 1, 2010. The repairs, if any, will be completed no later than November 1, 2011.

Since the inspection date, Conesville Plant personnel have repaired numerous rodent holes in the dikes. AEP will continue to monitor this area as part of its Dam Inspection and Maintenance Program (DIMP). Quarterly inspections of the facility are performed by Plant personnel and AEP Engineering conducts an annual inspection. If rodent holes are noted during the inspections, repairs will be performed.

AEP Engineering and plant personnel have been discussing the operating levels and freeboard requirements with the Ohio Department of Natural Resources Dam Safety Section. AEP plans to present a recommendation to address this issue to the ODNR by September 1, 2010.

4.4 Outlet Structures

Vegetation had established itself at the outlet structure from the Clearwater Pond. Although it has not become a problem presently, removal is recommended to maintain this area before the vegetation obstructs the discharge flow. The access bridge to this outlet structure should also be repaired so that it does not present a hazard to personnel servicing the spillway riser. At the time of the site assessment, this bridge had partially collapsed, was sagging in the water, and did not appear to be passable.

Drop inlet structures conveying water from the Bottom Ash Pond and Fly Ash Pond to the Clearwater Pond were in various stages of deterioration. These inlets, as well as the small access bridges to them should be maintained and repaired as needed to accommodate plant personnel access and insure continued function.

Response:

Since the inspection date, Conesville Plant personnel have performed maintenance on the outlet structures that includes vegetation control and repair to the floating walkway. AEP will continue to monitor this area as part of its Dam Inspection and Maintenance Program (DIMP). Quarterly inspections of the facility are performed by Plant personnel and AEP Engineering conducts an annual inspection. If deficiencies are noted during the inspections, repairs will be performed in a timely fashion as funding is available.

4.5 Instrumentation

Plant personnel take readings in the piezometers and pond levels on a quarterly basis. We recommend that values be established as part of the OM&I manual for changes in instrumentation readings that warrant a review of the stability and pond operation.

Wetland vegetation has grown on the downstream side of the Northern Haul Road Dike obstructing operation and measurements at the monitoring weir. This vegetation should be cleared and routine measurements resumed.

Response:

AEP Engineering routinely reviews the instrumentation readings for anomalies and indications of changes. AEP will develop a list of action levels related to the instrumentation as part of the additional stability analyses recommended in the final report. The OM&I will be revised appropriately. This work will be discussed and coordinated with the Ohio Department of Natural Resources, Dam Safety Section. AEP will complete this work by June 1, 2011.

Vegetation around the monitoring weir has been cleared as discussed in response to item 4.1.

4.6 Ash Complex Hydraulic Analysis

AEP was not able to provide CHA with a hydraulic analysis showing the ability of the Ash Complex to safely pass the 50% PMP event. However, preliminary analyses performed by CHA suggest there is enough storage capacity at the current operating pool to safely withstand this rainfall event. We recommend AEP perform a complete study to confirm this, and update the study if operating levels of the pond change in the future or the dike system is reclassified.

Response:

AEP will perform the hydrologic and hydraulic analyses required to verify that the facility has adequate discharge capacity and freeboard storage to safely pass the design storm of 50% PMP. This work will be discussed and coordinated with the Ohio Department of Natural Resources, Dam Safety Section. AEP will complete this work by June 1, 2011.

4.7 Additional Stability Analyses

Based on our review of available information for the Ash Complex we recommend that the following tasks be performed to confirm that the embankments are indeed stable under the various loading conditions outlined in Section 3.3.

- Subsurface data from the 1983 Woodward-Clyde and 2009 borings advanced by BBCM were used to assess the soil strength parameters. We recommend that subsurface information from borings advanced by C&SO in 1974 and AEP in 1981 also be included in the assessment. In particular, review available subsurface data for presence of a soft silty clay or clayey silt layer below the embankments as noted by WCC in their 1983 inspection report.
- We recommend that an investigation be performed in which the properties of the alluvium silt/clay layer can be investigated in more detail in order to determine the presence and thickness of the soft layer of material indicated in the boring CV-PZ-BAP-0903. This scope of work should include additional laboratory testing of samples retrieved from the alluvium layer.
- Additional cross sections should be evaluated, as the geometry of the dikes is not consistent and the cross sections that have been evaluated may not be representative of critical areas.
- CHA recommends stability analysis of a section through the northeastern portion of the Coal Haul Road where a secondary dike was not constructed.
- CHA recommends stability analysis of a section through the southwestern dike.
- CHA recommends stability analysis of Section B-B through the Secondary/Coal Haul Road Dike based upon the reported maximum operating pool at El. 764.
- CHA recommends that a stability analysis model be developed for the maximum surcharge pool (flood) condition.
- CHA recommends modeling the upstream slope stability for seismic and steady state seepage load cases.
- CHA recommends that the rapid draw-down load case be evaluated for the Ash Pond Complex. While a rapid drawdown is not a scenario that has a high probability of occurrence, CHA recommends understanding the condition and meeting recommended stability factors of safety for the unlikely event that water must be evacuated rapidly via methods other than the existing outlet control structures such as pumping to prevent a more catastrophic release should an emergency condition develop in the embankment.
- We recommend that a liquefaction analysis be performed in light of some of the loose to very loose alluvial soils encountered during the subsurface investigation for the site.

Response:

AEP will perform the additional field work, laboratory testing and engineering analysis as recommended. This additional work will be completed by June 1, 2011.